

# Photovoltaic Converter

YCH-H6424

Datasheet



YCH-H6424 PPC

## Key Features:

- High efficiency Si-based MIH<sup>®</sup> VMJ PV cells
- Optimized for 915nm through 980nm laser sources
- Utilizes low cost, high reliability laser diode wavelengths
- Designed for adaptability with custom heatsink options
- Efficiency at 5W input: ~27% without heatsinking
- Efficiency at 30W input: 25.5% with active liquid cooling
- Up to 18 volts output; ~16 volts output with 8W input
- FC / ST / SMA connector available

## Applications:

- Current Measurement (ECTs)
- Remote Sensors
- Power Electronics
- EMC Testing
- RF over Fiber & 5G

## Product Description

MH GoPower offers the only photovoltaic power converter (PPC) product line capable of delivering a wide range of power and voltage outputs. Power output levels range from tens of milliwatts to over 10 watts (higher power available upon request), while output voltage levels are possible from 4 volts to over 30 volts. MHGP's PPC product line operates most efficiently with wavelengths in the range of 900nm to 1,000nm, and with fiber with an NA of 0.22.

The MHGP YCH-H6424 is MHGP's high power PPC offering for applications requiring power up to ~3 watts (when passively cooled). Active cooling of the YCH-H6424 PPC enables over 10 watts output.

Target applications include powering remote and embedded sensors, current sensors, optical network components, IGBT and MOSFET gate drive circuits, as well as other applications requiring voltage isolation between the power source, and embedded electronics in high voltage or high noise environments.

**Availability:** FC / SMA model in stock; ST available on request.

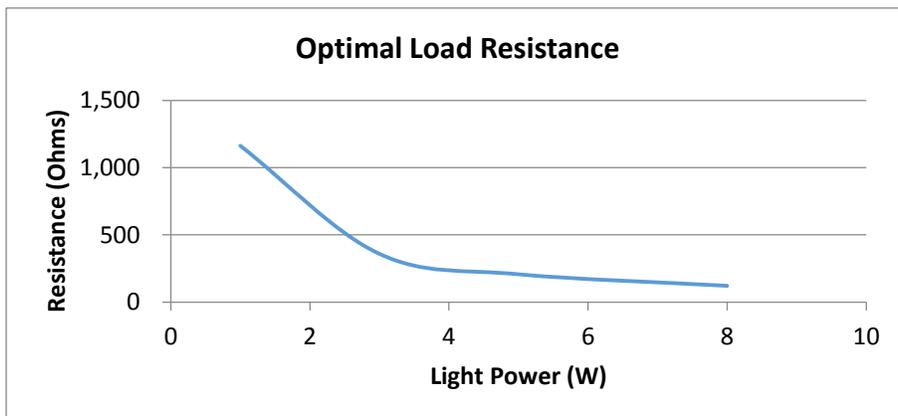
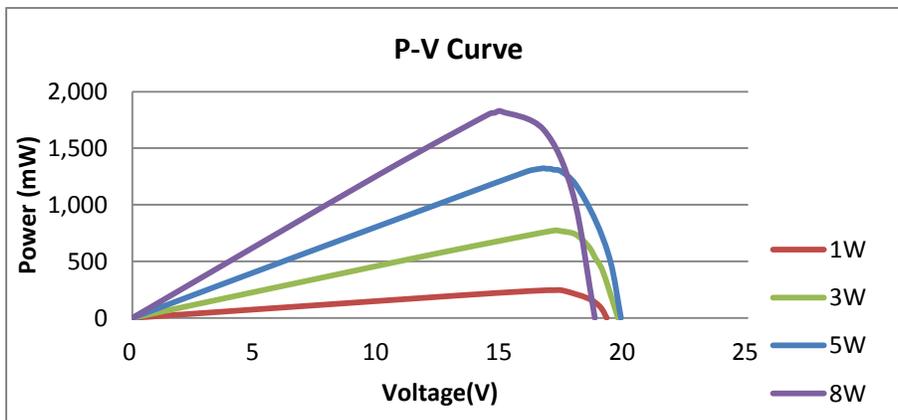
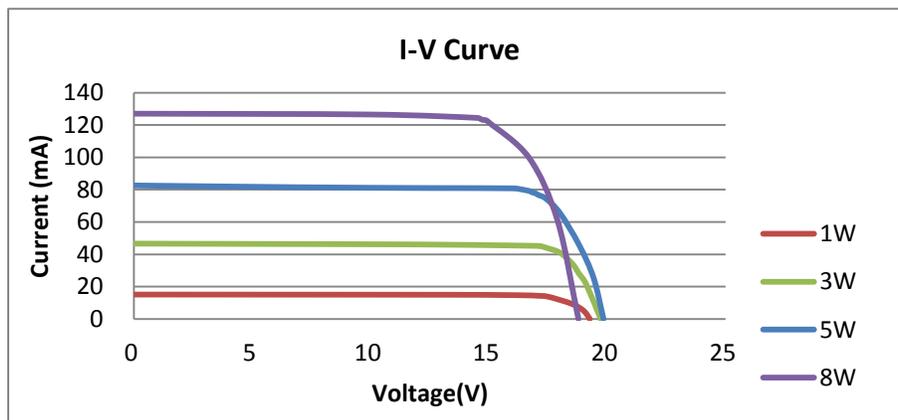
### Electrical Characteristics of YCH-H6424 PPC without additional heatsinking \*

Optical Power (mW)	1,000	3,000	5,000	8,000
Pmax (mW)	248	777	1,336	1,830
Vmax (V)	17.0	16.7	16.6	14.9
I <sub>max</sub> (mA)	14.6	46.5	80.3	122.8
Efficiency (%)	24.8%	25.9%	26.7%	22.9%

\* Typical converter performance with ambient temp of ~25°C

\* Tested with 975 nm wavelength laser

\* PPC held in free space, with no additional heatsinking, or airflow





YCH-H6424 PPC with Al heatsink

### Passive Heatsinking Option:

The YCH-H6424 PPC's performance with a heatsink is illustrated to demonstrate the adaptability of the YCH-H6424 PPC. Custom heatsinking can be easily applied to the YCH-H6424 PPC to generate higher power output, and higher performance. The below summarizes the performance of the YCH-H6424 PPC with a 50 x 24 x 17 mm aluminum (Al) heatsink. An efficiency of ~26% at 10W input is achieved.

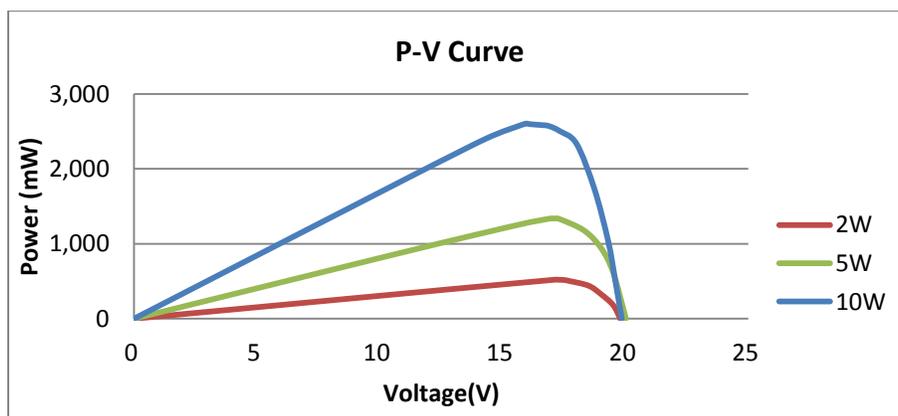
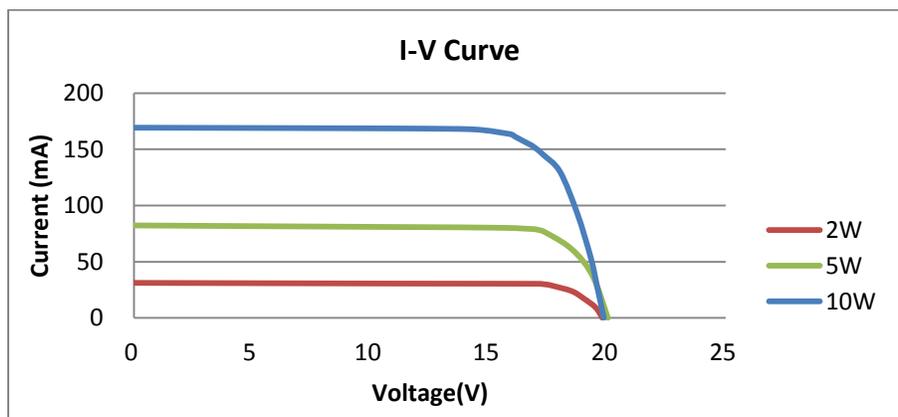
### Electrical Characteristics of YCH-H6424 PPC with Al heatsink \*\*

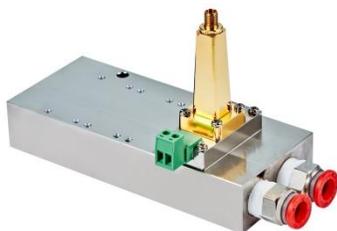
Optical Power (mW)	2,000	5,000	10,000
Pmax (mW)	525	1,349	2,600
Vmax (V)	17.7	16.9	16.1
I <sub>max</sub> (mA)	29.7	79.7	161.1
Efficiency (%)	26.3%	27.0%	26.0%

\*\* Typical converter performance with ambient temp of ~25°C

\*\* Tested with 975 nm wavelength laser

\*\* PPC and Al heatsink held in free space, with no active airflow over the heatsink fins or PPC





YCH-H6424 PPC with Active Cooling

**Active Cooling Option:** The YCH-H6424 PPC’s performance with active liquid cooling is also illustrated to demonstrate the high performance capability of the YCH-H6424 PPC. For applications where active cooling is available, the YCH-H6424 PPC is able to generate higher power output. The below summarizes the performance of the YCH-H6424 PPC performance with liquid cooling at 4/LPM and water temperature of 25°C. An efficiency of ~22% at 50W input is achieved.

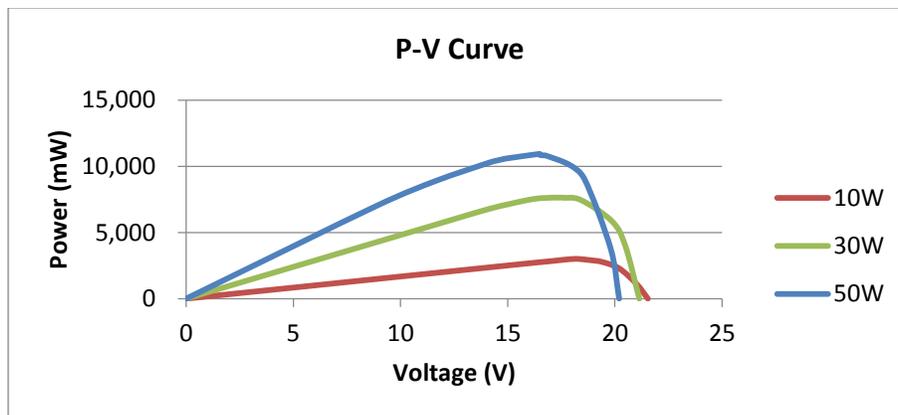
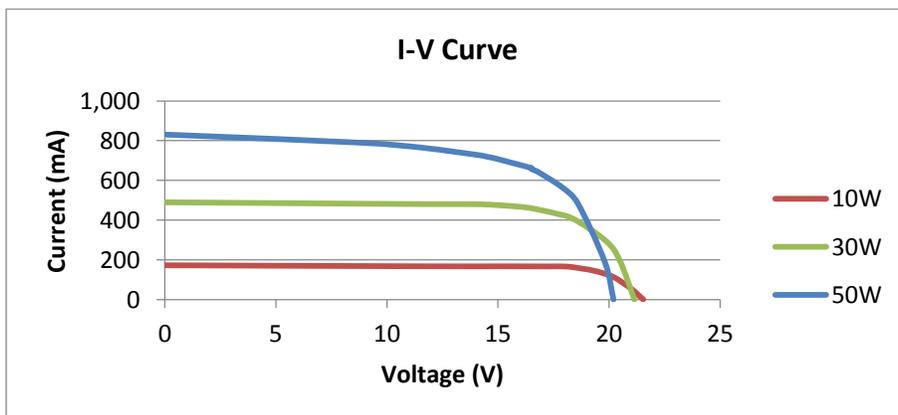
**Electrical Characteristics of YCH-H6424 PPC with Active Cooling \*\*\***

Optical Power (mW)	10,000	30,000	50,000
Pmax (mW)	3,008	7,636	10,940
Vmax (V)	18.2	17.5	16.5
I <sub>max</sub> (mA)	165.3	436.4	663.0
Efficiency (%)	30.1%	25.5%	21.9%

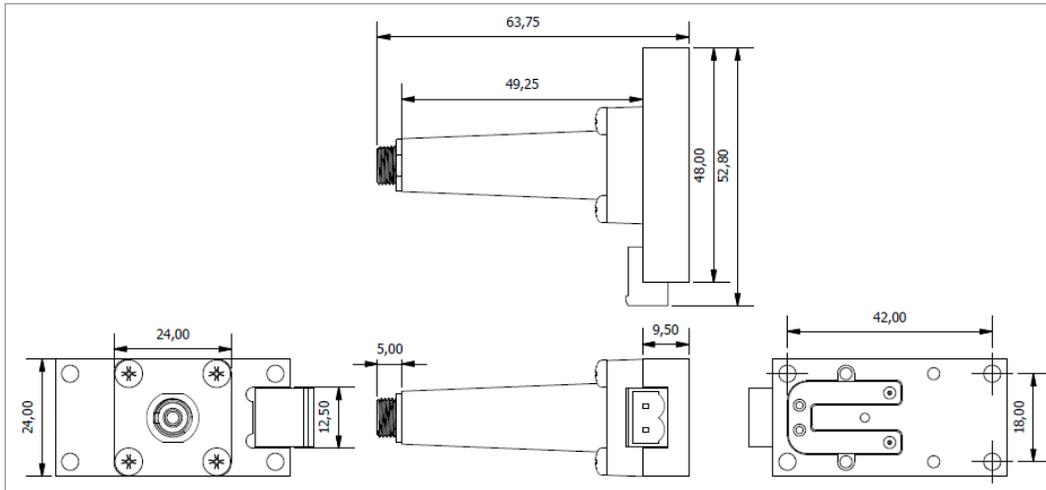
\*\*\* Typical converter performance with ambient temp of ~25°C

\*\*\* Tested with 976 nm wavelength laser

\*\*\* Active liquid cooling at 4/LPM with water temperature of 25°C



## Mechanical Dimensions



Net weight: 157g (Without heatsink); 186g (With Al heatsink)

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